Innovation

Geomagnetic sensors prepare for take-off

On the moming of 8 October 2001 a passenger aircraft bound for Copenhagen had just started to take off from Milan's Linate airport when it collided with a small corporate jet that had driven onto the runway, killing 118 people. Due to fog and the fact that the airport's ground radar was out of service, air-traffic controllers had no direct way of knowing where the two aircraft were and ought not to have cleared the airliner for take-off. But according to physicists Dive Hartmann and Haibin Gao at Saarland University in Germany, disasters such as this could be averted thanks to detectors that monitor disturbance in the Earth's magnetic field, writes Matthew Chalmers.

Knowing where aircraft and corvice vehicles are important as at all times is become v due to the the capacity of expansion of airports. stem for Most major this purpos upwards o have to rely on ground ra unwanter Hartm. cheapera based on resistance response to field induced objects such as a card 1% of the alter the field by geomagnetic field so ne sensors can pick up this signal from a distance of several metres and can even differentiate between aircraft types. The devices can be easily fitted at crucial locations around the airport and their output processed by software so that it can be feed directly into the main air-traffic control system.

A prototype system is currently installed in "taxiway S" and at gate E5 at Frankfurt airport in Germany, and also in the lights on the main taxtway of Thessaloniki airport in Greece. The researchers are working with a local electronics company Votronic to optimize the detector performance, and are in discussions with major firms about how to incorporate the detectors into runway lighting on a commercial scale. Although the response from airport authorities has been good, Gao cannot predict when the system will hit the market. "Aviation certification can take up to seven years, and will require us to prove that no more than one in every million sensors fails," he says, "But since I am as much a passenger as I am a physicist, I find such regulations quite reassuring."